C.1 BACKGROUND

The Naval Air Warfare Center Aircraft Division (NAWCAD), AIR-4.11, Rapid Capability Engineering and Integration (RCE&I) Department, Division 4.11.3, Ship and Air Integrated Warfare (SAIW), Patuxent River, Webster Field Annex, St. Inigoes, MD has a requirement to provide shipboard Communications Systems Modernization (CSM) support to the Department of Defense (DoD). As DoD has shifted its emphasis from shipbuilding investments towards investments in modernization and advanced capabilities, this requirement has grown in size and importance. These modernization efforts will provide both current and future fleet with the best overall balance of capability and capacity to meet DoD's needs. In order to be successful and to meet the ever-increasing demand for modernization and integration of communications/combat systems with existing and newly-designed airborne, land, and shipboard platforms, this requirement necessitates a quality-focused and holistic solution capable of rapid response.

C.1.1 PURPOSE

The purpose of this TO is to modernize the Navy fleet through the rapid integration of new technology Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance (C5ISR) systems providing the best overall balance of capability and capacity to meet the needs of current and future fleet, as well as supporting other DoD vessels, fleets, and systems.

C.1.2 AGENCY MISSION

AIR-4.11, NAWCAD RCE&I Department, develops integrated and interoperable quality products by maintaining a close working relationship with the customer and warfighter. The NAWCAD RCE&I Department provides the personnel, facilities, and processes required to design, prototype, develop, integrate, install, modernize, and provide engineering lifecycle support for airborne, shipboard, expeditionary small craft (land and sea) and shore-based systems for C5ISR systems, sensors, command/operations centers, intelligence management, and identification for Navy, DoD,. The NAWCAD RCE&I Department also provides organic integration capabilities for aircraft/airframe components, unmanned air vehicles/systems, and weapons. The NAWCAD RCE&I Department facilitates innovation by developing new approaches to integrate off-the-shelf technology/organically developed products and by accelerating the transition of critical technology to solve challenging engineering problems. The NAWCAD RCE&I Department follows DoD processes in support of Accelerated Acquisition/Rapid response/Rapid prototyping/Lead Capabilities Integration to develop and deliver products. The NAWCAD RCE&I Department performs these efforts at all levels of classification.

NAWCAD 4.11.3, a Division under NAWCAD RCE&I Department, has a mission of developing, delivering, and sustaining communications electronics and combat systems with proven capability and reliability, arming the warfighter with the technology to succeed in every mission and return home safely.

C.2 SCOPE

The scope of the CSM TO is to provide a quality focused process and capability that enables effective engineering integration and installation of C5ISR systems in support of NAWCAD 4.11.3. These services will support rapid design, development, customization, manufacturing, fabrication, procurement, integration, test and evaluation, installation, certification, maintenance and upgrade, logistic, modernization, and life cycle support of new and existing shipboard and airborne systems. The solution will be integrated with current and future Naval Surface Combatant Ships (e.g., Guided Missile Cruiser (CG), Guided Missile Destroyer (DDG), Guided Missile Frigate (FFG)), Aircraft Carriers (CVN), as well as United States Coast Guard (USCG) Vessels (i.e., Patrol Cutters). The major task areas of the CSM TO are defined below:

a. TASK 1 – Provide Program Management
b. TASK 2 – Provide Engineering Support Services
c. TASK 3 – Provide Technical Support Services
d. TASK 4 – Provide Procurement Support Services
e. TASK 5 – Provide Logistics Support Services
f. TASK 6 – Provide Additional As Needed Support Services (Optional)

The contractor shall support the following modernization and integrations efforts, which include, but are not limited to:

a. **Aegis Modernization (AMOD) Support:** Provide program and engineering, installation, and procurement support for the installation of the complex C5ISR alterations that combine to form the AMOD program.
b. **Carrier Ready Room (CRR) Technical and Engineering Support:** Provide technical and engineering support services to include supporting design, integration, and on-site installation of the CRR. Support also includes the development of associated engineering documentation and configuration, training, and planning support as required.
c. **MK 38 Machine Gun System (MGS) Technical, and Installation Support:** Provide technical and installation, support for the installation of the MK 38 MGS System on DDG 51 Class Destroyers, CVN Class Carriers, USCG Cutters, Patrol Coastal Class Ships, and other United States (U.S.). Navy and Coast Guard Ships.
d. **USCG Engineering and Program Management Support:** Provide engineering, acquisition, technical, and program management support to the USCG Offshore Patrol Cutter (OPC) and other USCG vessels. Services also include the design, upgrade, integration, installation, test and evaluation, prototyping, and documentation of USCG telecommunications systems. Support will require the monitoring of acquisitions, configuration management support, and participation in required meetings.
e. **Unmanned Aerial Systems (UAS) System Integration Support:** Provide integration support for UAS aboard designated aviation compatible ships including the Fire Scout Unmanned Aerial Vehicle, Navy Unmanned Combat Air System (NUCAS), and Small Tactical Unmanned Aerial System (STUAS). Support shall include the development of required acquisition documentation, ship integration Plans of Action and Milestones (POA&M) and risks, analyses of existing infrastructure onboard ship, and management, and technical support.

f. **Tomahawk Mission Planning Center (TMPC)/ Digital Camera Receiving System (DCRS)/Afloat Multimedia Productions System (AMMPS)/Geospatial Intelligence (GEOINT) Unified Naval Streaming System (GUNSS):** Provide technical, installation, integration, and procurement support for the installation of modernized TMPC, DCRS, AMMPS, and GUNSS. It is anticipated that some of the work shall require personnel to have or be able to obtain security clearances to be granted Sensitive Compartmented Information (SCI) access in order to perform tasks in an SCI cleared facility. Tasking may involve contractor staff performing work within a SCI cleared facility where communications circuits and systems will be operating.

g. **Joint Strike Fighter (JSF) Autonomic Logistics Information System (ALIS) Technical and Engineering Support:** Provide technical and engineering support services to include supporting design, integration, and on-site installation of the JSF ALIS. Support shall also include the development of associated engineering documentation and configuration, training, and planning support as required.

h. **Littoral Combat Ship (LCS) Technical, Procurement, and Installation Support:** Provide engineering, technical, procurement, and installation support to the LCS class for installation of the Multiple Vehicle Communication System (MVCS) mission module aboard the LCS as well as other rapid reaction installation support requirements that are C5ISR in nature.

i. **Airborne Mine Counter Measures Mobile Operations Center (AMCM MOC), Procurement and Installation Support:** Provide engineering, technical, procurement, and installation support to the AMCM MOC shore system.

j. **C5ISR Technology/ Irregular Warfare Support:** Provide rapid installation and configuration implementation supporting various C5ISR systems, including the areas of Information Assurance (IA), Cyber Warfare, Vulnerability Assessment, Cross Domain Solutions (CDS), Controlled Interfaces (CI), Very Low Attack Risk (VLAR) assessment, and multi-security posture testing and configurations related to actual and simulated battlefield environments. The contractor shall be familiar with the DoD Information Assurance Certification and Accreditation Process (DIACAP) and Risk Management Framework and how it relates to systems across Multi-Service environments.

The Government estimates 80% of the contractor personnel shall have a Secret security clearance or higher. The Government anticipates some of the work defined in **Section C.5** of the Performance Work Statement (PWS) will require personnel who shall either have or be able to obtain security clearances, which may eventually lead to personnel being granted SCI access in order to perform tasks in an appropriately cleared facility. Tasking may involve contractor personnel working within an SCI cleared facility where communications circuits and systems will be operating. Personnel involved will not work with SCI material, but shall work on adjacent equipment in an SCI cleared facility where SCI data is processed.

Receipt, inspection, production, integration, and testing of equipment supplied in performance of the CSM TO will normally take place at NAWCAD Patuxent River, Webster Field Annex, St. Inigoes, MD, but may occur at the contractor's facility or other Government facilities. The contractor may be called upon to perform post-installation and on-the-job training (OJT) for the platform's crew after custody transfer. The contractor shall not perform any inherently Governmental functions as defined in FAR 2.101.

C.3 CURRENT ENVIRONMENT

C.3.1 OPERATING ENVIRONMENT

CSM will operate in a predominantly project-based environment where the Technical Direction Letter (TDL) will serve as the basis of understanding between the Government and contractor for individual projects under the scope and tasks of the CSM TO. The TDL will further refine the scope, schedule, cost, labor mix, material, constraints, objectives, and ancillary issues surrounding the particular modernization and integration effort. The CSM contractor shall support many concurrent projects throughout the period of performance of this TO. The projects vary widely in size, scope, and complexity, and based on the number of current and potential modernization programs, there may be 25 or more on-going projects with multiple installations occurring within a given modernization program throughout a period of time. See **Section J, Attachment F** for the Projected Installation Matrix for fiscal year (FY) 2018 through FY 2022 identified by large/medium/small complexity and further broken down by project, ship class, and duration for each complexity level. Work under this TO may be accomplished at contractor facilities, Government facilities, on-site at the shipbuilders' facilities, or on-board ships either in-port or at-sea.

Rapid deployments and travel shall be required as the installation phase of most projects will be performed within a restricted maintenance window while the ships are docked at a shipyard. Due to this restricted timeframe, there is little room for error and corrections. As a result, quality of work is one of the most important considerations for the CSM requirement. Contractor Alteration Installation Teams (AITs) shall have a Quality Management System (QMS) plan accepted by Naval Sea Systems Command (NAVSEA) 04RP to perform work on the ships. The contractor shall ensure that proper training, certifications, and quality assurance (QA) controls are in place for the work identified in the TDL.

Travel will mostly be limited to contiguous United States (CONUS) shipyards such as San Diego, California (CA); Norfolk, Virginia (VA); Bath, Maine (ME); Pascagoula, Mississippi (MS); Mayport, Florida (FL); and Bremerton, WA. Travel will also be required to OCONUS locations which may include, but are not limited to, Pearl Harbor, Hawaii (HI); Bahrain; Italy; Japan; and Spain.

C.3.2 APPLICABLE DOCUMENTS

Requirements for NAWCAD 4.11.3 products to have interoperability among military, civilian, U.S., and foreign users may dictate an adherence to a variety of specifications and standards. DoD systems adhere to Joint Technical Architecture (JTA) Standards (Current Version). Non-DoD systems may be governed by numerous commercial, national, or international standards. The standards developmental organizations listed in **Section J, Attachment G**, Applicable Documents, are not all-inclusive and are presented only as representative sources of the technological interface details which may be required for systems integration under this TO.

The documents and document sources included in **Section J, Attachment G**, Applicable Documents, are provided for reference unless otherwise noted. The contractor shall list in the DoD ASSIST Database the revision level and date for each document, specification, or standard cited within this TO (including any specifications or standards cited in any drawing, handbook, or referenced specification or standard cited within this TO). The DoD ASSIST Database is located at the following web address: http://assist.daps.dla.mil/quicksearch/.

C.4 OBJECTIVE

The overall objectives for the CSM TO is to provide quality, efficiency, rapid capability, and the synergistic operation between all CSM tasks to deliver a modernized and advanced C5ISR capability to the Navy, DoD, and ultimately the warfighter.

NAWCAD's high-level objectives under this TO are as follows:

a. Provide rapid capability with global reach to concurrently surge, support, and manage multiple modernization efforts in various CONUS and OCONUS locations. Strategic location of resources shall enhance the rapid capability and global reach of the contractor, reducing project cycle times and delivering capabilities to the warfighter.
b. Provide a QMS and thorough knowledge and adherence to documented shipboard installation procedures and policies to complete the modernization effort during the restrictive available maintenance window and provide the warfighter crucial advanced capabilities.
c. Provide efficiency and ensure all functions of the CSM TO work together to deliver a successful modernization effort on or before the required date.

C.5 COMMUNICATIONS SYSTEMS MODERNIZATION TASKS

C.5.1 TASK 1 – PROVIDE PROGRAM MANAGEMENT

The contractor shall provide program management support under this TO. This includes the management and oversight of all activities performed by contractor personnel, including subcontractors, to satisfy the requirements identified in this PWS.

C.5.1.1 SUBTASK 1 – ACCOUNTING FOR CONTRACTOR MANPOWER REPORTING

The contractor shall report all contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the Navy via a secure data collection site. The contractor is required to completely fill in all required data fields using the following web address: http://www.ecmra.mil/.

Reporting inputs will be for the labor executed during the period of performance during each Government FY, which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year.

Contractors may use Extensible Markup Language (XML) data transfer to the database server or fill in the fields on the website. The XML direct transfer is a format for transferring files from a contractor's systems to the secure web site without the need for separate data entries for each required data element at the website. The specific formats for the XML direct transfer may be downloaded from the web.

C.5.1.2 SUBTASK 2 – COORDINATE A PROGRAM KICK-OFF MEETING

The contractor shall schedule, coordinate, and host a Program Kick-Off Meeting at the location approved by the Government (**Section F, Deliverable 002**). The meeting will provide an introduction between the contractor personnel and Government personnel who will be involved with the TO. The meeting will provide the opportunity to discuss technical, management, and security issues, and travel authorization and reporting procedures. At a minimum, the attendees shall include Key contractor Personnel, representatives from the directorates, other relevant Government personnel, and the FEDSIM COR.

At least three days prior to the Kick-Off Meeting, the contractor shall provide a Kick-Off Meeting Agenda (**Section F, Deliverable 001**) for review and approval by the FEDSIM COR and the NAWCAD Technical Point of Contact (TPOC) prior to finalizing. The agenda shall include, at a minimum, the following topics/deliverables:

a. Points of contact (POCs) for all parties
b. Draft Program Management Plan (PMP) (**Section F, Deliverable 003**) and discussion including schedule, tasks, etc.
c. Personnel discussion (i.e., roles and responsibilities and lines of communication between contractor and Government)
d. Staffing Plan and status
e. Updated Transition-In Plan (**Section F, Deliverable 004**) and discussion
f. Security discussion and requirements (i.e., building access, badges, Common Access Cards (CACs))
g. Invoicing considerations
h. Transition discussion
i. Updated Quality Control Plan (QCP) (**Section F, Deliverable 005**)
j. Technical Direction Letters (TDL)
k. Weekly cost reporting requirements for NAVAIR internal EVM System

The Government will provide the contractor with the number of Government participants for the Kick-Off Meeting and the contractor shall provide sufficient copies of the presentation for all present.

The contractor shall draft and provide a Kick-Off Meeting minutes report documenting the Kick-Off Meeting discussion and capturing any action items.

C.5.1.3 SUBTASK 3 – PREPARE A MONTHLY TECHNICAL PROGRESS REPORT (MTPR)

The contractor shall prepare and deliver electronically to the FEDSIM COR and NAWCAD TPOC an MTPR (**Section J, Attachment H**). The MTPR may cover more than one invoicing period when invoices are submitted more frequently than once per month, but in no case will the MTPR cover more than one calendar month. The contractor shall submit the first report no later than the 10th working day of the month following the first full month of contract performance. Subsequent report due dates will be predicated on the frequency of contractor invoicing; the contractor shall develop and provide the MTPR not later than the 10th working day of each month (**Section F, Deliverable 006**). The MTPR shall include the following:

a. Activities during reporting period, by task (include on-going activities, new activities, and activities completed, and progress to date on all activities). Each section shall start with a brief description of the task.
b. Problems and corrective actions taken. Also include issues or concerns and proposed resolutions to address them.
c. Personnel gains, losses, and status (e.g., security clearance, etc.).
d. Government actions required.
e. Schedule (show major tasks, milestones, and deliverables; planned and actual start and completion dates for each).
f. Summary of trips taken, conferences attended, etc. (attach Trip Reports to the MTPR for reporting period).
g. Accumulated invoiced cost for each Contract Line Item Number (CLIN) up to the previous month.
h. Projected cost of each CLIN for the current month.
i. TDL performance, schedule, and cost reporting.
j. Percentage of subcontracted dollars allocated for small business subcontract support.

C.5.1.4 SUBTASK 4 – CONVENE TECHNICAL STATUS MEETINGS

The contractor PM shall convene a monthly Technical Status Meeting with the NAWCAD TPOC, FEDSIM COR, and other Government stakeholders (**Section F, Deliverable 007**). The purpose of this meeting is to ensure all stakeholders are informed of the monthly activities and MTPR, provide opportunities to identify other activities and establish priorities, and coordinate resolution of identified problems or opportunities. The contractor PM shall provide minutes of these meetings, including attendance, issues discussed, decisions made, and action items assigned, to the NAWCAD TPOC and FEDSIM COR within seven workdays following the meeting (**Section F, Deliverable 008**).

C.5.1.5 SUBTASK 5 – PREPARE A PROGRAM MANAGEMENT PLAN (PMP)

The contractor shall document all support requirements in a PMP. The contractor shall provide the Government with a draft PMP (**Section F, Deliverable 003**) on which the Government will make comments. The final PMP (**Section F, Deliverable 009**) shall incorporate the Government's comments.

The PMP shall:

a. Describe the proposed management approach.
b. Contain detailed Standard Operating Procedures (SOPs) for all tasks.
c. Include milestones, tasks, and subtasks required in this TO.
d. Provide for an overall Work Breakdown Structure (WBS) with a minimum of three levels and associated responsibilities and partnerships between Government organizations.
e. Describe in detail the contractor's approach to risk management under this TO.
f. Describe in detail the contractor's approach to communications, including processes, procedures, communication approach, and other rules of engagement between the contractor and the Government.

C.5.1.6 SUBTASK 6 – UPDATE THE PROGRAM MANAGEMENT PLAN (PMP)

The PMP is an evolutionary document that shall be updated annually at a minimum (**Section F, Deliverable 010**). The contractor shall work from the latest Government-approved version of the PMP.

C.5.1.7 SUBTASK 7 – PREPARE TRIP REPORTS

The Government will identify the need for a Trip Report when the request for travel is submitted (**Section F, Deliverable 011**). The contractor shall keep a summary of all long-distance travel including, but not limited to, the name of the employee, location of travel, duration of trip, and POC at travel location. Trip reports shall also contain Government approval authority, total cost of the trip, a detailed description of the purpose of the trip, and any knowledge gained. At a minimum, trip reports shall be prepared with the information provided in **Section J, Attachment P.**

C.5.1.8 SUBTASK 8 – QUALITY MANAGEMENT

The contractor shall develop, document, maintain, and implement a QMS to ensure conformance with contractual requirements and the specific quality and performance requirements of specific tasks to be issued under this solicitation. The QMS shall meet the requirements of the American National Standards Institute/American Society for Quality (ANSI/ASQ) International Organization for Standardization (ISO) 9001:2008 series, or equivalent governing body. Regardless of the standard that is applied, the contractor's quality approach shall be clearly defined and recognize the need to focus on customer satisfaction, defect prevention over inspection, management responsibility, and continuous improvement.

The contractor shall provide the following services:

a. Conduct a thorough review of requirements to identify the controls, processes, skills, fixtures, tools, and test equipment needed to ensure product quality. The contractor shall conduct the planning review to update inspection and testing techniques, instrumentation, and manufacturing methods and processes. The Government may require the contractor to provide standard program data (e.g., test results, defects/failures identified, calibration results, etc.) to compile trend evaluations and the contractor shall make this available upon request.
b. Document and update all processes used to fabricate, assemble, modify, install, and test products. The contractor shall make available all the written procedures and work instructions to the employees required to perform the specific task. The contractor shall ensure that all procedures and work instructions are consistent with the contractor's QMS.
c. Submit a copy of the contractor's QCP that demonstrates conformance to the selected quality standard (**Section F, Deliverables 005 and 012**). In the QCP, the contractor shall address all areas of work to be performed under the TO to include hardware and software systems engineering, integration and installation, configuration management, and logistics and documentation. The contractor shall periodically update the QCP (**Section F, Deliverable 013**) as changes in program processes and procedures are identified.

d. Submit an Inspection System Plan (ISP) (**Section F, Deliverable 014**) for approval no later than 90 days after contract award. The ISP may include generic contractor procedures, but shall be specific regarding the work requirements stated in the CSM TO.

C.5.1.9 SUBTASK 9 – TRANSITION-IN

The contractor shall update the draft Transition-In Plan included with its proposal (**Section F, Deliverable 004)** and provide a final Transition-In Plan as required in Section F (**Section F, Deliverable 015**). The Government will ensure all in-progress work at the time of TO award will be completed under the existing contract to minimize risk. The contractor shall ensure there will be minimum service disruption to vital Government business and no service degradation during and after transition. The contractor shall implement its approved Transition-In Plan based on the schedule and details contained within the Transition-In Plan.

C.5.1.10 SUBTASK 10 – TRANSITION-OUT

The contractor shall provide Transition-Out support when required by the Government. The Transition-Out Plan shall facilitate the accomplishment of a seamless transition from the incumbent to an incoming contractor/Government personnel at the expiration of the TO. The contractor shall provide a draft Transition-Out Plan within six months of Project Start (PS) (**Section F, Deliverable 016**). The Government will work with the contractor to finalize the Transition-Out Plan in accordance with Section F (**Section F, Deliverable 017**). At a minimum, this Transition-Out Plan shall be reviewed and updated on an annual basis (**Section F, Deliverable 018**). Additionally, the Transition-Out Plan shall be reviewed and updated quarterly during the final Option Period (**Section F, Deliverable 018**).

In the Transition-Out Plan, the contractor shall identify how it will coordinate with the incoming contractor and/or Government personnel to transfer knowledge regarding the following:

a. Project management processes.
b. Points of contact.
c. Location of technical and project management documentation.
d. Status of ongoing technical initiatives.
e. Appropriate contractor to contractor coordination to ensure a seamless transition.
f. Transition of Key Personnel.
g. Schedules and milestones.
h. Actions required of the Government.

The contractor shall establish and maintain effective communication with the incoming contractor/Government personnel for the period of the transition via weekly status meetings or as often as necessary to ensure a seamless transition-out.

The contractor shall implement its Transition-Out Plan no later than (NLT) 90 calendar days prior to expiration of the TO.

C.5.1.11 SUBTASK 11 – PROJECT-SPECIFIC MANAGEMENT SERVICES

The contractor shall provide project management support services associated with the engineering, technical shipboard system integration, procurement, and logistics tasks to be

accomplished under this TO. The contractor shall provide the following services as directed by the TDL:

a. Communicate and coordinate with Program Executive Office (PEO) Command, Control, Communications, Computers and Intelligence (C4I), NAVSEA, and other external and internal stakeholders, as tasked, on issues associated with systems and their interface with other combat systems. The contractor shall accompany and support Government personnel at technical conferences and meetings, provide minutes or reports of formal meetings (**Section F, Deliverable 019**), and perform the daily activities and ad-hoc administrative actions associated with the execution of project tasks.
b. Establish and maintain methods of communication, (e.g., email, between its work locations and NAWCAD) to effectively and efficiently transfer information necessary to support the conduct of project and contract-related operations.
c. Support the development and maintenance of planning documentation, and conduct planning efforts necessary to identify, schedule, execute, and monitor project-related tasks. This may include PMPs (**Section F, Deliverable 020**), POA&Ms, staffing plans Ship Alteration Implementation Plans (**Section F, Deliverable 021**), and the input and maintenance of data in external planning databases.
d. Attend program reviews and other project-related meetings, prepare presentation materials as required (**Section F, Deliverable 022**), and provide meeting minutes and action item reports (**Section F, Deliverable 019**). As requested, communicate and coordinate with personnel in the offices of Chief of Naval Operations, NAVSEA, PEO C4I, Type Commanders, and other Government and industrial firms and activities participating in the efforts being conducted under this contract.
e. Communicate with Government personnel on the defined scope of assigned projects. Monitor the scope throughout the duration of the project and ensure effective and adequate methods are in place to proactively address and manage changes in project scope. This shall require the development and maintenance of a scope management plan, schedules (**Section F, Deliverable 023**), and work breakdown structures for specific projects.
f. Support the development of cost estimates, and update, and monitor the provided budgets for assigned projects and produce a Cost and Schedule Performance Report (**Section F, Deliverable 024).** This may require providing the financial and labor data to support the NAWCAD 4.11.3 earned value management program, or other similar techniques, to accomplish effective control and management of project costs and tasks.
g. Establish and execute processes and methods to effectively identify, communicate, and manage the risks associated with assigned projects. Ensure project risks are factored into cost and schedule, ensure mitigation plans are implemented, and produce a Project Risk Report as required (**Section F, Deliverable 025**).
h. Support the NAWCAD 4.11.3 PMO initiatives for existing technical, management, and business processes to increase their effectiveness, efficiency, quality, and cost performance.

C.5.2 TASK 2 – PROVIDE ENGINEERING SUPPORT SERVICES

The contractor shall provide engineering services to facilitate the design, acquisition, installation, and turnover of communications/combat system installations across a variety of naval ships and

shore sites. The engineering services to be executed under a TDL may include, but are not limited to, the tasks listed below.

The contractor shall provide the following services:

a. Assess the operational capabilities and effectiveness of fielded and proposed Radio Communication System (RCS)/C5ISR systems including system/equipment performance or operational deficiencies to determine candidates for changes, upgrade, or replacement. Document the assessment in a Technical Report according to **Section F, Deliverable 026**.
b. Conduct market research and assess potential applications of emerging technologies to alleviate noted deficiencies, enhance performance of existing systems, or provide the needed functionality required in response to new and emerging operational missions and threats. The contractor shall document the findings in a Technical Report according to **Section F, Deliverable 026**.
c. Identify and evaluate the suitability of commercial-off-the-shelf/non-developmental-item (COTS/NDI) equipment. Conduct testing to ensure correct operation, compatibility with existing subsystems and equipment, and suitability for integration into the specified RCS/C5ISR suites; arrange for special testing, such as shock, vibration, isolation and radiation hazards, and susceptibility to electronic countermeasures. Document results in a Technical Report according to **Section F, Deliverable 026**.
d. Support the design, development, and fabrication of equipment, ancillary hardware, interface units, and test fixtures not available from other sources or not otherwise provided. Support the development of Installation Control Drawings, Procurement Drawings, and Hardware Technical Documentation for such items according to **Section F, Deliverables 027, 028,** and **029**.
e. Analyze and recommend responses to shipbuilders' technical questions associated with RCS/C5ISR systems under NAWCAD purview Shipbuilder Item Review Comments and Technical Inputs Report according to **Section F, Deliverable 030**.
f. Analyze and resolve equipment/systems operational problems and deficiencies for ships in a deployable status, e.g., in reaction to Fleet Casualty Reports (CASREPS), support the development of quick-fix and long-term engineering solutions, and develop a Failure Analysis and Corrective Action Report according to **Section F, Deliverable 031**.
g. Provide quick-response support for ships in a complex maintenance window in the form of specialized engineering and support teams, and develop a Failure Analysis and Corrective Action Report according to **Section F, Deliverable 031** to react to complex pier side ship overhaul or operational equipment/system problems .and develop a Failure Analysis and Corrective Action Report according to **Section F, Deliverable 031**.
h. Provide on-call SME and rapid response technical and engineering support services for matters concerning the RCS/C5ISR or its interface and interoperability with other combat systems and develop a Failure Analysis and Corrective Action Report according to **Section F, Deliverable 031**.
i. Attend conferences and meetings with Government personnel to discuss and exchange technical, engineering, and programmatic information related to RCS/C5ISR systems engineering. Provide meeting/conference minutes and proposed responses to action items according **Section F, Deliverable 019**.

j. Develop and update a System Engineering Plan (SEP) according to **Section F, Deliverable 032**. The SEP will describe the contractor's ability to successfully navigate the System Engineering Technical Review (SETR) process, and cover its robust Systems Engineering model utilized in the engineering of its systems. Additionally, at the Government's discretion, the contractor shall support the development of a Systems Engineering Management Plan (SEMP) for projects/programs deemed to have sufficient complexity according to **Section F, Deliverable 033**. The SEMP will encompass the project/program's technical approach including processes, resources, metrics, applicable performance incentives, and the timing, conduct, and success criteria of technical reviews for tasking that includes system design or delivery.
k. Support at a set of system engineering reviews for projects that include system design and delivery as outlined in NAVAIRINST 4355.19EE. In the case that the NAVAIR instruction is not applicable, the Government will specify the relevant directive to be followed. For non-Acquisition Category (ACAT) programs, it is likely that, at a minimum, System Requirement Reviews (SRRs), Preliminary Design Reviews (PDRs), Critical Design Reviews (CDRs), and System Verification Reviews (SVRs) will be conducted on projects where a system will be developed or delivered. Other reviews that may occur at the Government's discretion are: Initial Technical Reviews (ITRs), Alternative System Reviews (ASRs), Installation Readiness Reviews (IRRs), Informal Design Reviews (IDRs) System Functional Reviews (SFR's), Software Specification Reviews (SSRs), Test Readiness Reviews (TRRs), Physical Configuration Audits (PCAs), and In Service Reviews (ISRs).

C.5.3 TASK 3 – PROVIDE SHIPBOARD SYSTEM INTEGRATION TECHNICAL SERVICES

The contractor shall provide shipboard system integration technical services to include the physical installation services for communications/combat system installation and integration. These technical tasks will adhere to the technical specification NAVSEA TS 9090-310 (F or later) for shipboard installation. The services under this task will also include technical data and documentation support required throughout the lifecycle of each project. The functions to be executed under a TDL may include, but are not limited to, the tasks listed below.

The contractor shall provide the following services:

a. Provide technical services for ship readiness/operability tests, conduct testing with approved test procedures to determine material condition of the systems, and ensure system is functioning in a technically acceptable manner and within specified tolerances. Address any deficiencies with a Readiness Deficiencies Resolution/Response Report according to **Section F, Deliverable 034**.
b. Evaluate the proficiency of the ship's crew in activating, operating, managing, and supporting RCS/C5ISR systems. Develop an OJT Plan according to **Section F, Deliverable 035** and provide OJT to operators and maintenance technicians as required.
c. Participate in at-sea operational demonstrations of RCS/C5ISR systems during Sea Trials and other test evolutions as required.

d. Provide engineering and technical support as needed to monitor/perform system installations to facilitate discussions and improve response time to technical questions concerning installation and testing of the system or its components according to Test Plans in **Section F, Deliverable 036**. The contractor shall also provide a functional interface between NAWCAD, PEO C4I, NAVSEA, the Planning Yard, the shipbuilder, and Supervisor of Shipbuilding, Conversion, and Repair (SUPSHIP) at the shipyards and other Government facilities.
e. Monitor installation of changes/alterations on board ship by installation teams to ensure compliance with approved installation documentation and standards. When deviations from approved installation documentation are required, the contractor shall ensure such deviations are reflected in future revisions to all technical documentation and drawings.
f. Observe and provide subject matter expertise during equipment installation, inspection, and testing of the system and its components aboard ship and at shore facilities to ensure the system has been installed properly and operates in accordance with current Government-furnished information (GFI). Generate a Readiness Test Report to reflect findings according to **Section F, Deliverable 037**.

C.5.3.1 SUBTASK 1 – CHANGE IMPLEMENTATION AND INSTALLATION

The contractor shall provide technical support services for equipment installation/integration when an engineering change, ship alteration, or upgrade is made to a system/subsystem. Installation may occur during ships' Post-Delivery Availability (PDA), Post Shakedown Availability (PSA), Selected Restricted Availability (SRA), Regular Overhaul (ROH), or other windows of opportunity. The contractor shall provide the following change implementation and installation services:

a. Generate and review ship alteration requests, repair packages, and other repair and overhaul planning documentation to ensure technical accuracy (**Section F, Deliverable 021**).
b. Participate in all project specific review meetings, weekly team meetings, and other integration meetings to support a variety of in-progress shipboard/shore installations.

C.5.3.2 SUBTASK 2 – TECHNICAL DATA AND ENGINEERING DOCUMENTATION SERVICES

The contractor shall provide technical and engineering support services for the development, acquisition, validation, and correction of technical data and technical documentation required for the detailed design, modernization, integration, installation, operation, and maintenance of the upgraded systems. Drawings, data, and documents will be made available as GFI to the installer, operator, and/or maintainer of the system. The contractor shall provide new or revised engineering drawings in a format which is compatible with the Initial Graphics Exchange Specification (IGES) (Auto CAD, CV CADD, or ASCII format). The contractor shall provide new or updated the following technical and engineering support services:

a. Support the development, maintenance, and update of engineering documentation to include space arrangement drawings, elevation drawings, cable block diagrams, and

cable run sheets to support the integration and installation of systems and upgrades according to **Section F, Deliverables 027, 028, 038, 039,** and **041**. The engineering documentation shall identify all significant technical details necessary to properly integrate and install the subject equipment or system.

b. Continually verify and update ship-specific or baseline documentation and control Drawings (**Section F, Deliverable 040**) to reflect existing and projected configurations of systems, to include space arrangement drawings, cable block diagrams and cable run sheets, interface control drawings, and other associated engineering drawings, lists, and documentation.
c. Support the obtainment or development, verification, and correction of installation control drawings (ICD) to be provided to the shipbuilder as GFI for installation of the systems or upgrades. Prepare individual ICD according to **Section F, Deliverable 027** for each integrated equipment cabinet and for free-standing equipment that has no vendor or International Safety Equipment Association (ISEA)-approved ICD.
d. Provide RCS/C5ISR subject matter expertise to support the development and revision of Type I, II, III, or IV technical manuals and/or Type I, II, III, IV, or V Interactive Electronic Technical Manuals (IETM) for specific equipment and systems according to **Section F, Deliverable 042**. These manuals shall encompass system installation, operation, and maintenance. In the case of COTS equipment or commercially available technical manuals, the contractor shall obtain and review such manuals for technical accuracy and shall adapt commercial manuals as necessary to meet Navy operational requirements and/or maintenance specifications.

C.5.4 TASK 4 – PROVIDE PROCUREMENT SUPPORT SERVICES

The contractor shall provide procurement support services to identify equipment requirements for integration, procure incidental material and hardware, track acquisition status and equipment disposition, and report such provisioning actions. The procurement support functions to be executed under a TDL may include, but are not limited to, the tasks listed below:

a. Identify material and equipment quantity and schedule requirements, including requirements for spare parts support at NAWCAD and other installation sites; assist NAWCAD personnel in planning the procurement of all long lead items required to upgrade, modernize, repair and maintain existing systems; maintain a current list of NAVSEA, PEO C4I and other Government activities' requirements for hardware items to be procured by NAWCAD; and provide technical expertise during the preparation of procurement documentation.
b. Receive, track, inventory, issue, and monitor all material, equipment, technical data, and logistic support items throughout the entire acquisition process.
c. Plan and coordinate the procurement and delivery of equipment with vendors to ensure deliveries meet required schedules.
d. Monitor the status of the orders and the projected delivery dates of ordered material and equipment. Ensure that spare parts necessary to support system integration/installation, and those required at the shipyard, are available when needed in order to meet ship and Fleet deployment schedules.

e. Develop Material Status Reports and Long Lead Time Status Reports in performance of the subtasks in **Section C.5.4** according to **Section F, Deliverables 043** and **044**.

C.5.5 TASK 5 – PROVIDE LOGISTICS SUPPORT SERVICES

The contractor shall provide logistics support services to ensure the quality and effectiveness of documentation and test equipment meet the standards set throughout this TO. The logistics support functions to be executed under a TDL may include, but are not limited to, the tasks listed below:

a. Review and analyze documentation to assess the effectiveness of technical and supply documentation, logistics support, and test equipment and document findings in a Technical Data Package Review Report (**Section F, Deliverable 045**). Where deficiencies are noted, recommend corrective action in a Design Deficiency Report (**Section F, Deliverable 046**).
b. Conduct independent logistics analyses and provide technical input and draft documentation in support of systems and equipment. Develop and analyze Acquisition Logistics Support Plans (ALSPs), User Logistics Support Summaries (ULSSs), Program Support Data Sheets (PSDSs), Logistics Requirements Funding Summaries (LRFSs), and Maintenance Plans (MPs) according to **Section F, Deliverables 047, 048, 049, 050, and 051**.
c. Collect and support the development of Reliability, Maintainability, and Availability (RM&A) data and identify associated resource requirements. Support the development of data collection, transmittal, and analysis procedures; provide and train personnel for site teams and ship visits to inspect and evaluate equipment reliability, maintainability, and availability performance. Produce RM&A Reports according to **Section F, Deliverable 052**.

C.5.6 TASK 6 – PROVIDE ADDITIONAL AS NEEDED SUPPORT SERVICES (OPTIONAL)

NAWCAD has a history of providing rapid responses to customer and mission requirements as they arise and in response to global events. The contractor shall provide specialized support as described in Tasks 1 through 5. Additional support requirements are variable in length and level of effort in support. Support services may require either short-term (e.g., up to one month) or longer-term (e.g., one or more months) projects. Support services requirements and deliverables for the additional support services are described in Tasks 1 through 5 and are within the scope of this TO but require additional personnel to meet the requirement.